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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,737	10/27/2003	Keisuke Endo	1982-0205P	9716

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EXAMINER

PHAM, HAI CHI

ART UNIT PAPER NUMBER

2861

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

4A

Office Action Summary

Application No.

10/692,737

Applicant(s)

ENDO ET AL.

Examiner

Hai C. Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 21-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6,7,9 and 11-31 is/are rejected.
- 7) ☒ Claim(s) 2,5,8 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 4 and 21 are provisionally rejected under the judicially created doctrine of double patenting over claims 1, 4 and 7 of copending Application No. **10/413,584** (Pub. No. U.S. 2003/0224256). This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows:

Current Application:

Copending Application No. **10/413,584**:

<u>Claim 1</u> : starting illumination of a laser beam from a laser oscillator onto a light-	<u>Claim 1</u> : supplying a photosensitive material comprising a base layer having
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photosensitive heat-developing photosensitive material having a surface layer including an emulsion layer is formed on a surface of a base layer; and forming a <i>cavity</i> at an interior of the surface layer by energy of the laser beam;	formed on a surface thereof an emulsion layer; and irradiating a laser beam onto the emulsion layer to thereby generate <i>air bubbles</i> inside the emulsion layer;
forming a convex portion as a dot on a surface of the light-photosensitive heat-developing photosensitive material by <i>completing illumination</i> of the laser beam at a point in time when a portion illuminated by the laser beam on the surface layer is deformed into a <i>convex</i> shape by a cavity formed in an interior portion of the surface layer;	and <i>stopping the irradiation</i> of the laser beam at a point in time when the emulsion layer has become <i>convex</i> due to the generation of the air bubbles
and forming a predetermined marking <i>pattern by the dot</i> or an arrangement of the dots.	whereby a <i>convex dot pattern</i> including plural minute air bubbles inside the emulsion layer is formed on the photosensitive material.
<u>Claim 4</u> : controlling an oscillation output of the laser oscillator and an illumination time of the laser beam.	<u>Claim 7</u> : ... using the laser oscillator to irradiate the laser beam in a spot onto the emulsion layer <i>to impart a predetermined</i>

	<i>amount of energy</i> to the photosensitive material, wherein numerous air bubbles are generated inside the emulsion layer <i>by the predetermined amount of energy</i> being imparted <i>within a predetermined time</i> , to thereby form visible dots.
<u>Claim 21</u> : starting illumination of a laser beam from a laser oscillator whose <i>oscillation wavelength is in a 9 μm band</i> onto a light-photosensitive heat-developing photosensitive material having a surface layer including an emulsion layer is formed on a surface of a base layer;	<u>Claim 4</u> : wherein <i>an oscillation wavelength</i> of the laser beam is set to be from 9.2 μm to 9.8 μm .
<i>... controlling an oscillation output</i> of the laser oscillator and <i>an illumination time</i> of the laser beam.	<u>Claim 7</u> : ... using the laser oscillator to irradiate the laser beam in a spot onto the emulsion layer <i>to impart a predetermined amount of energy</i> to the photosensitive material, wherein numerous air bubbles are generated inside the emulsion layer <i>by the predetermined amount of energy</i> being imparted <i>within a predetermined time</i> , to thereby form visible dots.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-4, 7, 21-23 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakane et al. (JP 59-19253) in view of Nakamura et al. (U.S. 5,940,115).

Nakane et al., an acknowledged prior art, discloses a laser marking method comprising illuminating with a laser light beam onto a photosensitive material having a surface layer including an emulsion layer (light absorbing layer 12) formed on the surface of the base layer 9substrate 11), forming a cavity at an interior of the surface layer by energy of the laser beam (e.g., generating minute air bubbles within the layer 12 by focusing the laser light beam to the layer 12), forming a convex portion as a dot on a surface of the light-photosensitive heat-developing photosensitive material by completing illumination of the laser beam at a point in time when a portion illuminated by

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the laser beam on the surface layer is deformed into a convex shape by a cavity formed in an interior portion of the surface layer (forming the dot or pit 15 having a convex shape due to the local expansion by the generation of the interior air bubbles, and forming a predetermined marking pattern by the dot or an arrangement of the dots (the pit 15 is a single dot among the plurality of dots formed by the exposure of the laser beam, which is modulated in response to the information recording signal) (see Abstract).

Nakane et al. is silent regarding the nature of the laser, e.g. a laser oscillator (claims 1, 21), the control of the oscillation output and illumination time of laser light source (claims 4, 7, 21), using an X-ray film (claim 3), and the beam deflector (claims 22-23, 27-28).

However, it is old and well known in the recording/marketing art that the selection of a laser light source type and parameters is necessary to obtain the best desirable result in a particular application and when dealing with a particular material as evidenced by Nakamura et al., an acknowledged prior art, which discloses a method and apparatus for irradiating a photosensitive material that has an emulsion layer (61) with a laser beam to form dots having convex (or concave) shape where the dot arrangement forms a predetermined marking pattern (col. 8, line 64 to col. 9, line 17) (Figs. 1 and 4), and wherein the laser beam is emitted by a set of laser [oscillating] tubes (20a-20g) [*please refer to the Response to Arguments section for discussion of the laser tubes versus laser oscillator*], whose operating parameters such as output energy and illumination time are controlled with respect to sensitivity of the

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photosensitive material, e.g., an X-ray film (7), the density level of the formed dot pattern, and the visibility of the dot pattern without occurrence of fog and/or combustion on the surface of the film so as to obtain a good image quality (see Tables 1-7).

Nakamura et al. further teaches a polygon mirror (4, Fig. 5) as a beam deflector for directing the scanned laser beam onto the photosensitive material.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Nakane et al. with the aforementioned teachings of Nakamura et al. The motivation for doing so would have been to obtain a good image quality with occurrence of fog and/or combustion on the surface of the film as suggested by Nakamura et al.

On the other hand, Nakamura et al. teaches using a CO₂ gas laser as the laser tube sources with a peak wavelength of 10.6 μm , an output of 40W and an irradiation time depending on the output or energy density of the laser being used to form a dot of about 200 μm diameter. Although Nakamura et al. does not teach the claimed limitations related to the laser beam irradiation condition, Nakamura et al. does suggest that the laser output should be carefully selected, e.g., laser beam irradiation time period, energy density, without causing deformation or deterioration on the image surface of the X-ray film. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the parameters of the laser beam as claimed, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

5. Claims 24-26 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakane et al. in view of Nakamura et al., as applied to claims 1 and 21 above, and further in view of Smart (U.S. 6,339,604).

Nakane et al., as modified by Nakamura et al., discloses all the basic limitations of the claimed invention except for the acousto-optic device and the laser beam cooling damper.

Smart discloses a method and apparatus for marking image pattern on a workpiece using a laser beam, wherein an acousto-optic modulator (AOM 26) is used to deflect the primary laser beam onto the workpiece and then is switched off so as that the unwanted secondary deflected laser beam is dumped onto a heat sink (28) (Figs. 2-3) (col. 6, lines 29-56).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the AOM deflector and the beam dump in the device of Nakane et al. as taught by Smart. The motivation for doing so would have been to avoid unwanted laser beam to expose the photosensitive material.

Allowable Subject Matter

6. Claims 2, 5, 8, 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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7. The following is a statement of reasons for the indication of allowable subject matter: the primary reason for the indication of the allowability of claim 5 is the inclusion therein, in combination as currently claimed, of the limitation related to the "projecting height of the convex portion, which forms the dot, with respect to a top surface of the surface layer" being set at "10 μm or more", which is not found taught by the prior art of record considered alone or in combination.

Response to Arguments

8. Applicant's arguments with respect to claims 1, 3-4, 6-7, 9, 11-31 have been considered but are moot in view of the new grounds of rejection presented in this Office action.

9. Applicant's arguments filed 03/16/05 have been fully considered but they are not persuasive with regard to the laser beam generating tubes of Nakamura et al., which uses a CO₂ gas laser. The Applicants stated that "[T]he laser beam generating tubes as disclosed in Nakamura can in no way be equivalent to the laser oscillator as claimed", which is a clear contrast to the description of the laser oscillator applied to the current invention as described in the current Specification:

"Another object of the present invention is to provide a laser marking method which, regardless of changes in output of a laser oscillator such as a laser oscillating tube or the like, can form, on a photosensitive material, a marking pattern ..." (page 8, line 1-6) (emphasis added).

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"The laser oscillating tube 144 applied to the present embodiment is a CO₂ laser"

(page 42, lines 9-12) (emphasis added)

The preferred laser oscillator as claimed is therefore similar to the laser light source disclosed by Nakamura et al.

More to the points, Applicants specifically points to the Japanese Patent No. 3191201, owned by Nakamura et al. (whose equivalent U.S. Patent is the current cited reference), for the disclosure of the typical laser oscillator (Specification, page 2, lines 7-16).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM
PRIMARY EXAMINER

May 25, 2005